Guidelines for Safe and Efficient Operating Procedures at the Scene of a Highway Incident

-Developed for Kentucky Emergency Responders-

The goal of this document is to provide guidance on safe and efficient operating procedures at the scene of an incident. The intent is for responding agencies to use these guidelines to help develop and/or revise their standard operating procedures for highway incident scenes. The expected result of implementing these guidelines includes:

1) Improved safety for victims, motorists, and responders,
2) Reduced time spent at the scene of an incident, and
3) Reduced duration and extent of the roadway closure.

In conjunction with these guidelines, local responding agencies should work and plan together. Interagency coordination is the key to efficient and effective operations at the scene of an incident. Along with proper planning, agencies should ensure that personnel receive the appropriate training to perform their designated duties.

The following information was adapted from Respondersafety.com's Standard Operation Procedures (SOP) for "Safe Positioning While Operation In or Near Moving Traffic" and other national, state, and local strategies (refer to additional resources on the last page of this document) and is intended to provide guidance to all emergency responders at the scene of an incident. Responding agencies should keep in mind that specific procedures will vary depending on the type of incident, the type of roadway, the surroundings, and each agency's SOP.

Safety Benchmarks

All emergency personnel are at great risk of injury or death while operating in or near moving traffic. There are several specific tactical procedures that should be taken to protect all responders at the incident scene including;

1. Never trust approaching traffic.
2. Avoid turning your back to approaching traffic.
3. Establish an initial "block" to create a physical barrier between the crash scene and approaching traffic with the first arriving emergency vehicle or fire apparatus. The first emergency vehicle that motorists see should be angled away from the shoulder (or median, depending on the location of the incident) to channelize traffic away from the incident.
4. Always look before opening doors and stepping out of an emergency vehicle into any moving traffic areas. When walking around vehicles or equipment, be alert to your proximity to moving traffic.
5. Always wear ANSI Class III high visibility reflective vests during daylight and nighttime operations.
6. Turn off all sources of vision impairment to approaching motorists at nighttime incidents including vehicle headlights and spotlights. Lighting may be needed to illuminate the work area, but care should be taken not to blind oncoming motorists.
7. Use fire apparatus and police vehicles to initially redirect the flow of moving traffic.
8. Establish advance warning and adequate transition area traffic control measures upstream of the incident to reduce travel speeds of approaching motorists.
9. Use traffic cones where appropriate for sustained highway incident traffic control and direction. (Flares may be used in conjunction with (but not in place of) traffic cones.)
10. Someone should be designated to serve as the traffic manager at the scene of the incident to monitor approaching traffic and ensure that a qualified responder (or "flagger) is continuously directing traffic past the scene. The flagger should be ready to activate an emergency signal if the actions of a motorist do not conform to established traffic control measures in place at the highway scene. The flagger should be placed between the incident and the on-coming vehicles, so as to direct attention away from the scene and toward the roadway ahead. (All responders should have appropriate training in emergency traffic control procedures.)
11. For large scale incidents, implement the "50 MPH Rule". This rule provides for wide dissemination of closure or major incident information to appropriate media outlets, including other states. For every hour that the incident is expected to last, provide notice to motorists far enough away that they can avoid the closure. Following this rule will reduce the likelihood of secondary crashes by reducing the size of the traffic queue.

Apparatus and Emergency Vehicle Benchmarks

Listed below are benchmarks for safe parking of apparatus and emergency vehicles when operating in or near moving traffic.

1. Always position first-arriving apparatus to protect the scene, patients, and emergency personnel.
    a. Initial vehicle placement should provide a work area protected from traffic approaching in at least one direction.
    b. Angle vehicles on the roadway with a "block to the left" or a "block to the right" to create a physical barrier between the crash scene and approaching traffic. The first vehicle that motorists see should be angled away from the shoulder (or median, depending on the location of the incident) to channelize traffic away from the incident. Other vehicles may be angled toward the shoulder.
    c. Vehicles and equipment should be parked on the same side of the roadway (on the same side as the incident, when practical) and in the same direction as the flow of traffic.
    d. Except for vehicles specifically protecting the scene, emergency response vehicles should be parked off the roadway, at a staging area, or on the shoulder (or as an alternative, on the median).
    e. Personal vehicles should be restricted or at least limited on high-volume, limited access highways.
    f. Allow apparatus placement to slow approaching motorists and redirect them around the scene.
    g. It is desirable to remove debris from the roadway as soon as approval is given by the investigating police officer. Debris may be used as evidence and may need to be photographed or measured.
    h. Keeping lanes open should be a priority. If an accident is blocking one lane, then first responders should attempt to use a linear placement method to form protection in the blocked lane only.
    i. If approaching vehicles are traveling in excess of 50 mph or other safety concerns warrant it, fire apparatus may be used to block an additional traffic lane more than that already obstructed by the crashed vehicle(s).
    j. When practical, position fire apparatus in such a manner to protect the pump operator position from being exposed to approaching traffic.
    k. Law enforcement vehicles should be first in sight to drivers in order to provide blue lights at eye-level. Be sure to turn off forward facing flashing lights to prevent "rubbernecking" on opposite lanes.
2. Positioning of large apparatus must create a safe parking area for EMS units and other fire vehicles. Operating personnel, equipment and patients should be kept within the "shadow" created by the blocking apparatus at all times.

a. A “shadow” vehicle is a large vehicle (33,000 GVWR laded to at least 20,000 lbs).

b. The vehicle should be spotted 100 to 250 feet upstream from the work space depending on the speed limit, wheels cut toward the shoulder. If used in the left lane and there is a median, wheels should be cut toward the median. If there is no median, then leave wheels straight and increase the distance from the work space.

c. The shadow vehicle should not be involved in the incident mitigation efforts and should NOT be occupied by people.

d. For extended incidents, if practical, request a crash cushion vehicle from the Kentucky Transportation Cabinet.

3. When blocking with apparatus to protect the emergency scene, establish a sufficient size work zone that includes all damaged vehicles, roadway debris, the patient triage and treatment area, the extrication work area, personnel and tool staging area and the ambulance loading zone.

4. The fire engine should be placed as close to the crash as practical. If there is clearly no fire hazard, then the vehicle should not impede others responding to the incident. Law enforcement should stop prior to the incident to allow room for the engine, if necessary.

5. Ambulance should be positioned within the protected work area with their rear patient loading door area angled away from the nearest lanes of moving traffic.

6. Tow trucks should be parked ahead of the wrecked vehicle and out of the way. Flashing lights should be extinguished if in a position to be protected by another response vehicle.

7. Command shall stage unneeded emergency vehicles off the roadway or return these units to service whenever possible.

8. At all intersections, or where the incident may be near the middle lane of the roadway, two or more sides of the incident will need to be protected.

   a. Police vehicles must be strategically positioned to expand the initial safe work zone for traffic approaching from opposing directions. The goal is to effectively block all exposed sides of the work zone. The blocking of the work zone must be prioritized, from the most critical or highest traffic volume flow to the least critical traffic direction.

   b. For first arriving engine or truck companies where a charged hose line may be needed, block so that the pump panel is “down stream”, on the opposite side of on-coming traffic. This will protect the pump operator.

   c. At intersection incidents, consider requesting police response. Provide specific directions to the police officers as to exactly what your traffic control needs are. Ensure that police vehicles are parked in a position and location that provides additional protection of the scene.

9. Traffic cones shall be deployed from the rear of the blocking apparatus toward approaching traffic to increase the advance warning provided for approaching motorists. Cones identify and only suggest the transition and tapering actions that are required of the approaching motorist.

10. Personnel shall place cones and flares and retrieve cones while facing oncoming traffic.
11. To provide advance warning to motorists and establish a transition zone, six (6) traffic cones should be evenly dispersed upstream of the blocking apparatus with the furthest traffic cone approximately 100 feet upstream.
12. Additional traffic cones may be used to extend the advance warning area for approaching motorists or to further delineate the incident scene.
13. Reposition vehicles as soon as possible to allow traffic to flow on as many lanes as possible once the operational phases (extrication, medical care, and suppression) are completed.

Incident Command Benchmarks

The Incident Commander must complete critical benchmarks to assure that a safe and protected work environment for emergency scene personnel is established and maintained including;

1. Assure that the first-arriving apparatus establishes an initial block to create an initial safe work area.
2. Assign a parking location for all ambulances as well as later-arriving apparatus.
    a. Lanes of traffic shall be identified numerically as “Lane 1”, “Lane 2”, etc., beginning from the right to the left when right and left are considered from the approaching motorist’s point of view. Typically, vehicles travel a lower speed in the lower number lanes.
    b. Directions “Right” and “Left” shall be as identified as from the approaching motorist’s point of view left or right.
    c. Instruct the driver of the ambulance to “block to the right” or “block to the left” as it is parked at the scene to position the rear patient loading area away from the closest lane of moving traffic.
3. Assure that all ambulances on-scene are placed within the protected work area (shadow) of the larger apparatus.
4. Assure that all patient loading into Med Units is done from within a protected work zone.
5. Assure that all unnecessary vehicles leave the scene as soon as possible.
6. The initial company officer and/or Incident Commander must operate as the Scene Safety Officer until this assignment is delegated.
7. Command shall assure that proper emergency lighting remains ON. All forward facing flashing lights should be turned off to prevent “rubbernecking” on opposite lanes.

Emergency Lighting Benchmarks

The use of emergency vehicle lighting is essential, especially in the initial stages of a traffic incident. However, emergency lighting provides warning only and no effective means of traffic control. Drivers may become confused and often distracted by excessive amounts of flashing lights. When good traffic control has been established, the use of emergency vehicle lighting can be reduced.

1. Flashing lights should be ON when incident vehicles are in the freeway lanes or on the shoulder and traffic is passing at normal speeds.
2. Flashing lights should be ON at nighttime when on the shoulder to warn vehicles that might illegally be using the shoulder.
3. Flashing lights should be OFF during daylight hours when incident vehicles are sufficiently off the freeway and other vehicles are slowing passing the scene.
4. Special consideration should be given to reducing or extinguishing forward facing emergency vehicle lighting, especially on divided roadways, to reduce distractions to oncoming road users.
5. The preference for rear warning lights should be amber.
6. Provide overall scene lighting if needed and if possible. Consider that headlights may blind oncoming motorists and limit their use.

Additional resources:

"Apparatus Placement." Erlanger Police Department. Course curriculum.

"At Scene Traffic Safety – Incident Management". Maine Department of Labor. PowerPoint presentation.

Duluth/Superior Area Incident Management Plan. BRW, Inc. Prepared for Duluth TOCC Incident Management Work Team. December 1999.

"Emergency Traffic Control for Responders". Kentucky Transportation Center. Course Curriculum. June 2006.

Emergency Vehicle Safety Initiative. FEMA. FA-272. August 2004.

"Guide to IAFC Model Policies and Procedures for Emergency Vehicle Safety". International Fire Chiefs Association.

"Highway Crash Site Management". Kentucky Transportation Center. Course Curriculum. Revised 2007.

"Incident Management Plan: I-81 and I-581." Virginia Department of Transportation and Virginia State Police. July 1996.

Manual on Uniform Traffic Control Devices. Chapter 6I. FHWA. 2003 Edition.

Moore, Ron. "Safe Parking #6: Limited-Access Highways." Firehouse.com. Internet article. April 2006.

Moore, Ron. "Safe Parking #5: Special Safety Equipment." Firehouse.com. Internet article. August 2004.

Moore, Ron. "Vehicle Rescue Safety". Parts 1 and 2. Respondersafety.com. Internet article. June 2004.

Patrick, Richard W. "Follow the Cones: Highway scenes & your protection". www.jems.com. Internet article. 2007.

Traffic Incident Management Handbook. PB Farradyne. Prepared for FHWA, Office of Travel Management. November 2000.

Traffic Incident Management Recommended Operation Guidelines. Minnesota Incident Management Coordination Team. March 2002.